DOCUMENT RESUME

ED 096 292 95 SP 008 422

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TITLE	Performance-Based Education at Northern Montana College.
INSTITUTION	Northern Montana Coll., Havre.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	Aug 74
NOTE	33p.
AVAILABLE FROM	Performance Based Education Project, Northern Montana College, Havre, Montana 59501 (no price quoted)
EDRS PRICE	MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS	*College Curriculum; College Instruction; College Programs; Curriculum Development; Educational Improvement; *Performance Based Education; *Program Development; *Program Planning

ABSTRACT

This document reviews the first year of progress for the Performance-Based Education (PBE) project at Northern Montana College. The project is a projected five-year (five-phase) plan to adapt curricular offerings to a performance-based standard. The five phases will focus on the following activities, respectively: (a) identification of competencies for vocational-technical education and teacher education; (b) development and initiation of PBE in vocational-technical education and teacher education; (c) full implementation of PBE in vocational-technical education and teacher education; (d) initiation of PBE in majors, minors, and general education and development of PBE in graduate programs; and (e) implementation of PBE college-wide. Included within this report are examples of performance goals and objectives established for various course offerings. Also included are descriptions of phase one, with implications for future directions of the PBE Project. (Author/HMD)

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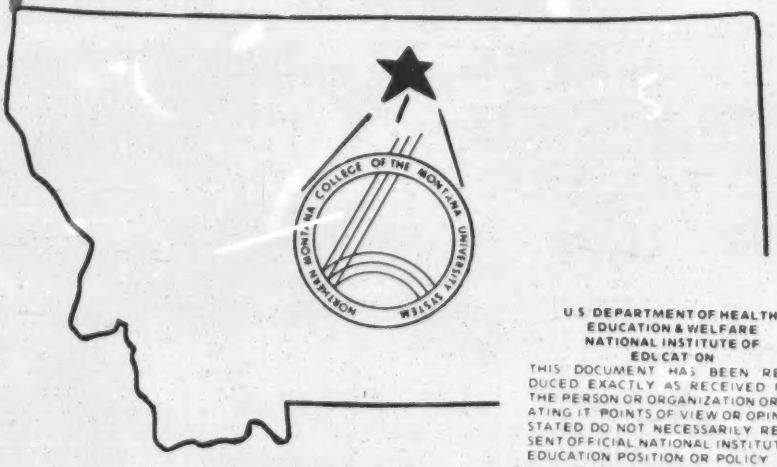
Performance-Based Education at Northern Montana College



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1974

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This document was promulgated by funding provided in part through EPDA, Part F in cooperation with the Office of the Superintendent of Public Instruction and Northern Montana College.

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PREFACE

Although the concept of performance/competency based education is not new to most individuals and educational groups at all levels, Northern Montana College has embarked on a project which is envisioned to incorporate the most favorable components of the presently sweeping performance-based education movement.

The uniqueness of the Performance-Based Education Project at Northern Montana College lies in the attempts to make the basic tenents of PBE interdisciplinary, while maintaining a longitudinal (five-phase) developmental plan utilizing a parity relationship for all concerned parties. This monograph is intended to communicate the essential elements of our project to the greater educational community.

As with any project, success is not determined by the total staff efforts, but rather by the efforts of all concerned parties. Therefore, we would like to take this opportunity to thank all of those who have contributed unselfishly of their time to this first year of the project. The first year of the project would not have been possible without the cooperation of the Northern Montana College administration and staff and the support provided by the Office of the Superintendent of Public Instruction

of the State of Montana.

We hope this document will assist others in the growth of the PBE movement. It is our belief that communication by all involved in the movement is essential if the profession is to avoid "reinventing the wheel."

A. W. K.

J. P. C.

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ABOUT NORTHERN MONTANA COLLEGE

Northern Montana College, located at Havre, Montana, is a medium-sized, co-educational institution, one of the six units of the Montana University System. Because of its location in north central Montana, far removed from the other five units of the University System, it serves a large segment of the state from North Dakota to Idaho and far to the south. The college is administratively and academically organized into three divisions: Vocational-Technical, Teacher Education, and Pre-Professional and General Studies.

This institution of higher education offers the Master of Science degrees in Elementary Education and Vocational-Technical Education; the Bachelor of Science degrees in Elementary Education, Secondary Education, and Vocational-Technical Education; the Bachelor of Arts degrees in English and History; and the Associate degrees in several vocational and pre-professional programs. In vocational-technical education, Northern fulfills the unique distinction of serving the entire state of Montana since it is the only unit of the University System offering vocational-technical programs of study.

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INITIATION OF PERFORMANCE-BASED EDUCATION

In July 1973, Northern Montana College, in conjunction with the Office of the Superintendent of Public Instruction, embarked on a projected five-year Performance-Based Education Project. The scope of the project was quite comprehensive. The utlimate goal was to convert all programs in all divisions to fulfill performance-based criteria. The rationale, of course, for a performance-based program is to provide greater flexibility to a student's program, by individualizing instruction or making all learning outcomes known to the student prior to instruction. Completion of such a program is based on a student's abilities and competencies rather than the period of time he attends college. The student has the option of completing a college program in less than the two or four year traditional time span. The procedure outlined in the original design incorporated the following phases:

Phase I Competencies identified in Vocational-Technical Education and Teacher Education.

Phase II Performance-Based Education developed and initiated in Vocational-Technical Education and Teacher Education.

Phase III Performance-Based Education fully implemented in Teacher Education and Vocational-Technical Education.

Development begun in majors, minors, and general education.

Phase IV Performance-Based Education initiated in majors, minors, and general education. Begin development in the graduate program.

Phase V Performance-Based Education implemented college-wide.

At the time of this writing, the PBE Project at Northern is in PHASE I. However, it should be noted, that progress toward the other four phases is also being realized as the project proceeds toward termination of PHASE I.

In order to develop a competency/performance-based education program, the staff and faculty of Northern agreed upon the "course translation" method as most expeditious for development of PBE. This method, as presented in Houston's book, Strategies and Resources for Developing a Competency-based Teacher Education Program, calls for identification of performance goals for existing courses and/or programs. Figure 1 on the following page illustrates a Performance-Based Education Program.

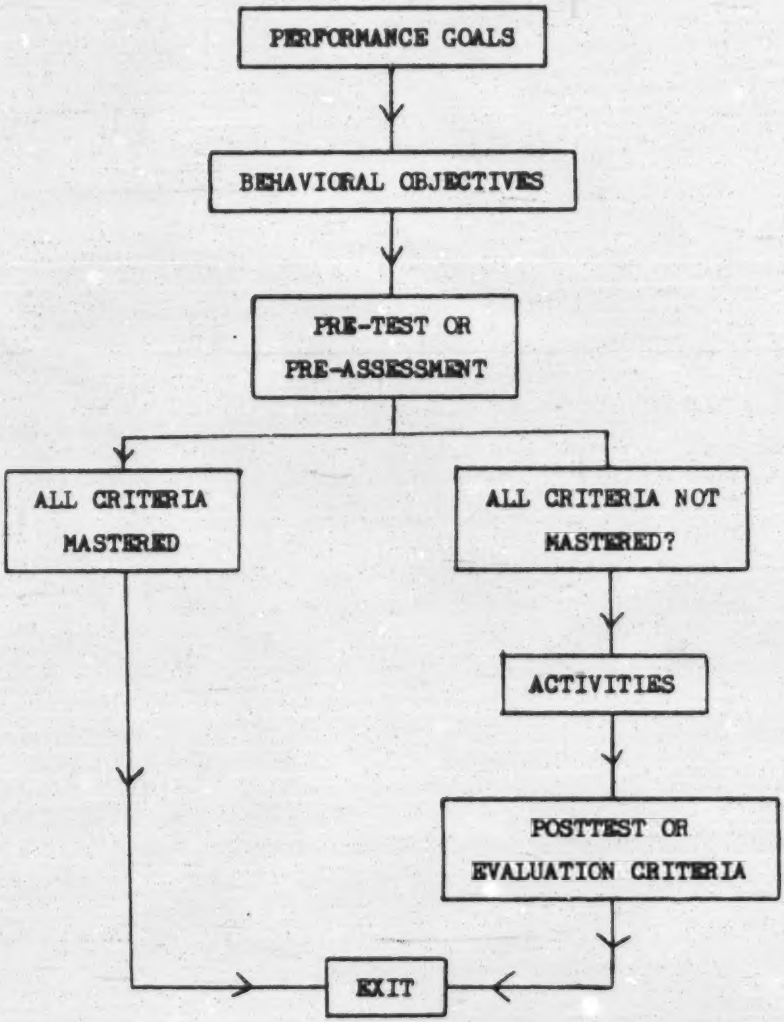
MAJOR DEVELOPMENTS OF PHASE I (1973-74)

Although one of the most significant project developments, at the time of this writing, was the familiarization of the faculty and staff with the performance-based education concept, many subsidary developments have been accomplished

FIGURE 1

A SCHEMATIC DEPICTING A

PERFORMANCE-BASED EDUCATION PROGRAM



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during PHASE I. Therefore, it will be the purpose of this section to briefly review some of the major developments to date.

One of the early goals of the project was to articulate to the faculty and staff the major components of a performance-based program. In order to accomplish this goal, the PBE Project initiated a survey of the member institutions of the National Council for the Accreditation of Teacher Education (NCATE). Letters of inquiry were also sent to State Departments of Education and other institutions. The NCATE survey and other communications produced a "State of the Art" information system in addition to examples of materials developed at various institutions throughout the United States. As a result, the project staff was able to: (1) inform the faculty and staff about other programs, (2) provide examples of materials developed at other institutions, and (3) identify institutions which could fulfill a consultory role for the PBE Project at Northern Montana College.

In an effort to acquaint the faculty and staff of Northern with examples of developments in performance-based education, the project staff first identified operating performance-based programs at other institutions, and second, identified possible consultants to be employed for campus visitation. (See figure 2) Visitation sites were also identified for NMC faculty to examine in terms of appropriateness

FIGURE 2

CONSULTANTS RETAINED

for

NMC/PBE PROJECT

CONSULTANT	SOURCE	TOPIC
Dr. Fred Cook	Director, Department of Vocational and Applied Arts Education Wayne State University, Detroit, Michigan	Competency-Based Education in Vocational and Applied Arts (VAE)
Dr. Harley Adamson	Chairman Secondary Education Department Weber State College, Ogden, Utah	Individualized Performance-Based Teacher Education (IPTE) at Weber State

to existing and projected programs at Northern.

Another objective of PHASE I was to have the faculty and staff become familiar with operational programs by direct observation. A number of faculty and project staff traveled to identified field sites and major conferences to further study the merits of performance-based education and gather information which would supplement the efforts of the PBE

SITE VISITATIONS

BY

PROJECT STAFF AND FACULTY

SITE	LOCATION	DESCRIPTION
University of Houston	Houston, Texas	Model Performance-Based Teacher Education Program
Weber State College	Ogden, Utah	Model Individualized Performance-Based Teacher Education Program
Portland Community College	Portland, Oregon	Systematized Independent Study Approach
Western Washington College	Bellingham, Washington	Teacher Effectiveness Measured by Pupil Growth
Mountain Plains Career Education Project	Glasgow, Montana	Individualized Career Education Program

SITE	LOCATION	DESCRIPTION
Great Falls Area Vocational Center	Great Falls, Montana	Vocational Education utilizing the Ken Cook Systems Approach
Florida State University	Gainesville, Florida	Performance-Based Teacher Education and the PBTE Multi-State Consortium Conference on Collaboration
Phoenix	Phoenix, Arizona	AACTE Leadership Conference on Performance-Based Teacher Education
American Education Research Association	Chicago, Illinois	Annual AERA Research Conference-variety of sessions on Performance-Based Education
New Orleans	New Orleans, Louisiana	International Reading Association Convention Sessions on Performance-Based Programs in Reading

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Caterpillar Company	Peoria, Illinois	Individualized Instruction in Diesel Technology
Northwest Regional Educational Laboratory	Portland, Oregon	Rural Education Teacher Development Strategies
California State University	Los Angeles, California	Performance-based Teacher Education

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staff. The list on the preceding pages encompasses those sites and conferences which the faculty and staff of Northern Montana College had the opportunity to visit.

In conjunction with the development of PHASE I, the PBE Project enlisted the participation of six cooperating school districts in the Northern Montana area. This component of participating schools was designed to provide input from the local field sites which would ultimately utilize students prepared under a competency-based program. Also, participating schools were used to provide

FIGURE 3

PARTICIPATING SCHOOL DISTRICTS
FOR PBE PROJECT
1973-74 SCHOOL YEAR

DISTRICT	LOCATION
Chester Public Schools	Chester, Montana
Fort Benton Public Schools	Fort Benton, Montana
Havre Public Schools	Havre, Montana
Hingham Public Schools	Hingham, Montana
*Rocky Boy School	Box Elder, Montana
Rudyard Public Schools	Rudyard, Montana

*Indian Reservation

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a link between developments at Northern Montana College and public schools in the area. (See figure 3)

Faculty members from the participating school districts together with the project staff were organized into a Professional Advisory Committee (PAC). The purpose of this committee was to guide the developments of the PbE Project through needs of the field.

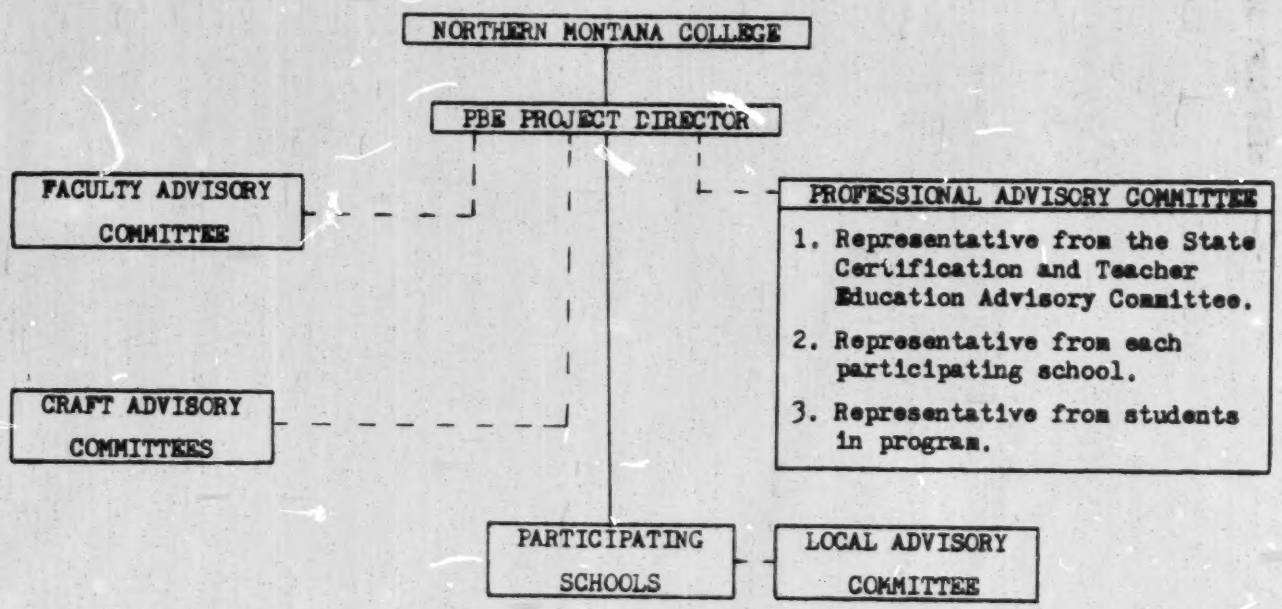
In order to facilitate development of the project on campus, a Faculty Advisory Committee (FAC) was established to provide the project staff with input from all divisions of the college. The orchestration of these committees and others is depicted by the schematic on the following page. (See figure 4)

After acquainting the faculty with the basic tenents of performance-based education, the PBE staff, receiving input from the afore mentioned committees, began using the "course translation" approach with those faculty members who indicated interest and/or had courses easily adaptable to a first stage of development in terms of performance-based criteria.

Included herein are examples of courses which faculty and staff, representing all divisions at Northern Montana College, have converted to performance-based criteria. This list is by no means inclusive of all efforts to date, but merely pro-

FIGURE 4

COOPERATING SCHOOLS, ORGANIZATIONS, AND AGENCIES


NORTHERN MONTANA COLLEGE
PBE PROJECT DIRECTOR
FACULTY ADVISORY COMMITTEE
PROFESSIONAL ADVISORY COMMITTEE
1. Representative from the State Certification and Teacher Education Advisory Committee.
2. Representative from each participating school.
3. Representative from students in program.
CRAFT ADVISORY COMMITTEES
PARTICIPATING SCHOOLS
LOCAL ADVISORY COMMITTEE

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vides the reader with examples of developments up to the time of this writing. A major thought to keep in mind is that while most performance-based programs have emphasized conversion of courses in teacher education; Northern Montana College is committed to the principle that if PBE concepts are appropriate for preparation in teacher education then they should also be appropriate in all areas of preparation.

VOCATIONAL-TECHNICAL DIVISION

Course Department	Title	Credits
Agricultural Technology	Grain Grading AG 236	2 credits

This course offered by the Agricultural Technology Department, was delineated into performance goals with supportive behavioral objectives made explicit to the student ahead of time.

EXAMPLE:

Performance Goal

1. The student will justify methods and procedures for:
   a. obtaining a representative sample of grain for grading purposes.
   b. identifying and labeling field seeds.
   c. determining field seed purity.
   d. grading grain.

BEHAVIORAL OBJECTIVE	ACTIVITIES	MEANS OF EVALUATIO
1.5 Using the kjeldahl equipment, each student	a. Use kjeldahl equip-	a. Check out by professor to determine

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will examine samples of wheat and barley to determine, by listing, the percentage of protein.	ment. b. Demonstration/ lecture. c. Films.	accuracy of protein percentage. b. Peer ratings using checklist.

Automotive Technology Metal Finishing 8 credits
AT 134

This course has been individualized in terms of units assigned and provision for self-pacing on behalf of the students.

Illustrative performance goals are:

The student will:

1. demonstrate knowledge of automobile metal finishing.
2. exhibit skills relative to automobile metal finishing.
3. exhibit desirable attitudes relative to automobile metal finishing.
4. demonstrate a broad understanding of the relationship of automobile metal finishing to automotive repair.

Automotive Technology Auto Engines I 5 credits
AT 121

Since occupational sequences consist of job sheets, operation sheets, and related information, this course was structured onto an occupational sequence chart with jobs, operations, and information matrices exhibited for quick access and clear direction. Students can work independently following the manual of operations and necessary related information.

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Associate Degree Nursing Program

The Associate Degree Nursing Program at Northern Montana College utilizes commercially prepared materials for many of the courses offered in the nursing program. This material entitled, Learning Experience Guides for Nursing Students (LEGS), published by John Wiley & Sons is a multimedia system of individualized nursing instruction. The principle role of the instructor in the LEGS program is one of resource person, motivator, organizer-manager, and diagnostician. The students exit various units upon demonstrating mastery of a posttest for the particular unit.

PRE-PROFESSIONAL AND GENERAL STUDIES DIVISION

Course Department	Title	Credits
Languages and Literature	Communications EG 152	3 credits

This course, primarily taken by freshmen students, was analyzed and redefined via performance goals and enabling behavioral objectives. Exit is determined by the students' ability to meet the evaluative criteria established for each behavioral objective. Emphasis is placed on essays and current events.

EXAMPLE:

Performance Goal

1. The student will be able to express himself clearly through writing.

BEHAVIORAL OBJECTIVE	ACTIVITIES	MEANS OF EVALUATION
1.10 Using the news media as a source of information, each student will write eight essays analyzing and interpreting news articles. 2.10	a. Lectures b. T.V. c. Radio. d. News media e. Class discussion. f. Write additional essays if no improvement is demonstrated on original after three attempts.	a. Assessment by professor according to the following criteria: 1. essay approximates the quality of "B" essay examples. 2. essay is based on article attached. 3. individual's analysis of news article. 4. spelling and grammatical errors must be corrected with 95% accuracy before the given grade is recorded. b. Final approval required on each essay before beginning a subsequent essay.

Science — Entomology SB 324 — 5 credits

Through the use of laboratory exercises, field experiences, and demonstration/lecture, this course was reformulated into performance-based criteria.

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EXAMPLE:

Performance Goal

1. The student will demonstrate ability to express economic implications of insects and control methodologies.

BEHAVIORAL OBJECTIVES	ACTIVITIES	MEANS OF EVALUATION
3.10 The student will summarize the economic implications of insects and methods of insect control.	a. Class presentations. b. Community projects. c. Collection of data available relevant to insect control. d. Synthesize economic factors related to insect damage, etc.	a. Assessment by college professor of class presentations. b. Objective test with 70% proficiency. c. Essay test summarizing problems of insect control. Must include: 1. costs 2. public reaction 3. means of control.

Music and Art — High School Music MU 325 — 2 credits

The purpose of this course is to have students acquire specific skills, knowledges and techniques deemed necessary to successfully manage a comprehensive secondary school music program. Optional activities are included for advanced students or those students desiring to enhance their competency on a particular level.

EXAMPLE:

Performance Goal

1. The student will have specific factual knowledge about the background, philosophies, and history of Music Education and how it relates to Public Education.

BEHAVIORAL OBJECTIVES	ACTIVITIES	MEANS OF EVALUATION
1.2 Write and deliver a 5-minute talk on the value of music education in the public schools. Talk is to be taped on closed circuit T.V.	a. Read the following 1. chpt. II TMSS* 2. chpt. II SSM* b. Attend lecture/discussion #2. c. View filmstrip. d. Give oral critique of classmates presentation.	a. Class response and comments to talk. b. Analysis of video-tape for: 1. content 2. presentation 3. effectiveness

Languages and Literature Fund. of Speech 2 credits
EG 141

This course in speech, enrolled primarily by freshmen, was analyzed and transformed into performance-based criteria. Exit from this course is determined by mastery of the behavioral objectives.

EXAMPLE:

Performance Goal

1. The student will develop the ability to speak

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competently, confidently, and ethically in a democratic society.

BEHAVIORAL OBJECTIVE	ACTIVITIES	MEANS OF EVALUATION
1.10 The student constructs and delivers before the class at least one each of the three (3) major types of public address: (a) informative, (b) persuasive, and (c) occasional.	a. Delivering speeches. b. Taking part in class discussion of speeches. c. Examination of literature relevant to speech communication.	a. Instructor's evaluation of speech performance (40%). b. Instructor's evaluation of student's compliance with preset standards of mechanics of speech construction: thesis, outline, research illustration, demonstration, etc. (10%)

Foreign Language Program

All students entering the first course in either French or German begin at the same level and progress individually at their own rate.

Students possessing some skill in foreign language are placed at a level commensurate with their ability.

Mastery criteria for all lessons and units within a course are made explicit to the student prior to instruction.

Students utilize tapes, listen to records, read materials other than the text and have individual conferences as they progress through each

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unit of a course. To exit a course, they must demonstrate competency in reading, writing, speaking, and listening skills.

EDUCATION DIVISION

The major thrust of the Education Division, at the time of this writing, has been the development of a cluster of modules for the student teaching experience. Efforts have been directed to refining and specifying the requirements of student teachers in order to develop a program which would (1) document clearly what the student teacher has accomplished and (2) identify strengths and weaknesses for more direct attention. The student teaching cluster of modules has been field tested with approximately forty student teachers out in the field. A survey of the student teachers and supervising teachers indicated a high degree of satisfaction with the performance-based material.

EXAMPLE:

Performance Goal

5. The student teacher will construct a lesson plan. A lesson plan is the breakdown of the unit into its daily components, i.e., the daily behavioral objectives, the experiences and activities for the day, the beginning and end of the lesson, etc.

BEHAVIORAL OBJECTIVE	ACTIVITIES	MEANS OF EVALUATION
5.0 In behavioral terms, prepare	a. Read or refer to	a. Assessment by college super-

a detailed outline of at least one unit that will be taught. The unit will include the behavioral objectives or competencies, activities, and evaluation.	materials from General Methods class. b. Read pamphlet on writing behavioral objectives. c. Examine examples of units or modules. d. Discussion groups.	visor.

Course Department	Title	Credits
Education	General Methods	5 credits

Education Methods 325, designed for elementary and secondary education majors was reformulated into performance goals and objectives to cover four main areas: (1) teaching and learning methodology, (2) educational technology, (3) micro teaching, and (4) public school laboratory service.

BEHAVIORAL OBJECTIVES	ACTIVITIES	MEANS OF EVALUATION
1.10 Each student when presented with a task randomly selected from the "Equipment and Procedures" list in handout #II will demonstrate the ability to set up, operate, identify	a. Read instructor prepared manual (kept in AV lab, ask the lab technician) for each piece of equipment.	a. Students will be "checked out" on a one-to-one basis. Although you will be asked to demonstrate the operation of only 3-4 pieces of equipment on <u>random</u> basis

basic functions and locate user required maintenance parts. The demonstration will be considered satisfactory when all criteria contained in handout #II relative to the selected task are completed.	b. Read Handout #II-F. c. Locate those instructions threading diagrams, etc. normally found on the lid or chasis of various pieces of equipment. d. Be able to operate, film strip and slide projector, phonograph, 16 mm projector, reel and cassette tapes, recorders, overhead and opaque projectors. e. Be able to demonstrate basic "user maintenance techniques." f. Be able to splice tape, duplicate records, or tapes, and demonstrate live recording techniques.	you should be ready to work with any piece of equipment listed at the left, according to the check list in handout #II-F.

Physical Education Rhythmics 2 credits
HP 235

This course in rhythmics, offered by the Physical Education Department in the Education Division, was reformulated into performance-based criteria.

EXAMPLE:

Performance Goal

2. The student will acquire knowledge of a wide range of rhythm and dance activities and know the logical progression to include folk, square, social, ballroom, and recreational dances.

BEHAVIORAL OBJECTIVE	ACTIVITIES	MEANS OF EVALUATION
1.20 Each student will teach one folk, square, social, ballroom, or recreational dance to one class selected from 1st through 6th grade during the quarter. The appointment for each student's teaching will be made by the instructor.	a. Teacher-made handouts. b. Library references.	a. Classroom teacher's evaluation based on the following criteria: 1. equipment and class area ready. 2. evidence of preparation for class presentation. 3. clearness of explanation. 4. adequate introduction to the dance. 5. detects mistakes. 6. helps pupils having difficulty.

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FUTURE DIRECTIONS

As indicated in the earlier section, Initiation of Performance-Based Education, the PBE Project at Northern Montana College is projected for five phases. Efforts for the future will focus on the remaining four phases with the ultimate goal of producing a model of performance-based education encompassing all divisions within the college. Considerable attention will be given to field experience coupled with instruction as a method of maximizing competency development of students in various majors. It is intended that through the use of the committees mentioned previously and faculty involvement, an inter-disciplinary performance-based approach can be established at Northern Montana College. A number of factors presently exist which would seem to enhance the possibility for development of a comprehensive performance-based approach at NMC. Briefly, these factors are: (1) size of Northern Montana College, (2) cooperation of surrounding school districts, and (3) variety of degree programs offered at the college.

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Mr. Alve J. Thomas	Administrative Assistant to the Superintendent of Public Instruction
Mr. Benjamin A. Ulmer	Director, Vocational and Occupational Skills
Mrs. Barbara Crebo	Supervisor, Education Professions Development Act, Part F

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Dr. Lee Spuhler	Dean, Education Division
Dr. Albert VanderLinde	Dean, Vocational-Technical Division

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Mrs. Alice Varnum	Graduate Assistant
Miss Sharon LaBuda	Clerical-Secretarial

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Lydia Sutherland	Rocky Boy Schools
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